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Title of the Invention:

Photopolymerizable Element

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Inventor(s):

Harry Edward Crawford

Applicant(s):

E.I. du Pont de Nemours and Company

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Scope of Patent Claim

A photopolymerizable element comprising a support and a photopolymerizable layer from 5 to 250 mils in thickness containing an addition-polymerizable ethylenically unsaturated liquid or solid component capable of forming a high polymer by photoinitiated polymerization in the presence of an addition-polymerization initiator activatable by actinic radiation, and a polymerization initiator in an amount effective to such a polymerization, characterized in that the portion of the layer of at least 2.5 mils and not more than half the total thickness of the photopolymerizable layer on the side not in contact with the support of the photopolymerizable layer contains an inhibitor of thermal addition-polymerization at least 1.5 times the content of thermal addition-polymerization inhibitor in the portion of the layer in contact with the support.

Additional Claims

1. The photopolymerizable element according to the scope of patent claim using a solid photopolymerizable layer and an initiator thermally inactive at or below 85°C.
2. The photopolymerizable element according to the scope of patent claim or the preceding additional claim, including 10 to 50000 parts by weight of the polymerization inhibitor per million parts by weight of the photopolymerizable layer.
3. The photopolymerizable element according to the scope of patent

claim or one of the preceding additional claims, wherein the support is a metal and a stratum of antihalation material is disposed between the metal support and the photopolymerizable layer.

4. The photopolymerizable element according to the scope of patent claim or one of the preceding additional claims, wherein at least one addition-polymerizable compound in the photopolymerizable layer has at least one terminal $\text{CH}_2 = \text{C} <$ group.

5. The photopolymerizable element according to the scope of patent claim or one of the preceding additional claims, wherein the photopolymerizable layer contains at least 10% of a cross-linking ethylenically unsaturated addition-polymerizable compound containing a plurality of terminal ethylenic groups.

6. The photopolymerizable element according to the scope of patent claim or one of the preceding additional claims, wherein the polymerization initiator is an addition-polymerization initiator capable of producing a free radical, activatable by actinic radiation and thermally substantially inactive at or below 85°C.

7. The photopolymerizable element according to the scope of patent claim or one of the preceding additional claims, wherein one of the photopolymerizable layers closer to the support contains the initiator at a concentration higher than the amount sufficient for even polymerization, and the concentration of the initiator in the entire layer is at or below 35% by weight of the addition-polymerizable, ethylenically unsaturated component.

8. The photopolymerizable element according to additional claim 7,

wherein the photopolymerizable layer constituting the major thickness near the support is composed of a plurality of strata containing the initiator in progressively increasing concentration.

9. The photopolymerizable element according to additional claim 7, wherein the photopolymerizable layer constituting the major thickness near the support is composed of a plurality of strata containing the initiator in progressively increasing concentration and the layer constituting the minor thickness away from the support is composed of a plurality of strata containing the inhibitor in progressively decreasing concentration.